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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,681	02/18/2004	Jin Yong Kim	2658-0316P	8546
2292 7590 05/17/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER CHU, KIM KWOK	
			ART UNIT 2627	PAPER NUMBER
			NOTIFICATION DATE 05/17/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/779,681

Applicant(s)

KIM, JIN YONG

Examiner

Kim-Kwok CHU

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 2/12/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,13-23 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-23 and 25 is/are allowed.
- 6) ☐ Claim(s) 1,4,5,13-18 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 6-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/334,894.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Remarks***

1. Applicant's Amendment and Remarks filed on February 12, 2007 have been fully considered. Applicant states that the secondary prior art of Seong et al. (U.S. Patent 6,449,241) has a later filing date and does not qualify as a valid prior art (page 8 of the Remarks, last two paragraphs). Accordingly, a newly found reference of Imaino et al. (U.S. Patent 5,373,499) is used as a prior art.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

3. Claims 1, 4, 5, 13-18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. Patent 6,392,979) in view of Imaino et al. (U.S. Patent 5,373,499).

4. Yamamoto teaches an optical recording medium very similar to that of the present invention as in Claims 1, 4 and 28. For example, Yamamoto teaches the following:

(a) With respect to Claim 1, the optical recording medium 55 suitable for recording or reproducing information by irradiating a laser beam at a wavelength between 395~425 nm onto a recording surface of the optical recording medium (Fig. 4; column 6, lines 31-33), the laser beam being incident from a side of the optical recording medium 55 through an objective lens 52 having a numerical aperture of 0.62~0.68 (Fig. 4; column 6, line 53, column 9, lines 60-64; the numerical aperture range is set within the range 0.6 to 0.7 depends on the storage capacity), the optical recording medium 55 comprising at least one substrate and at least one recording surface (Fig. 4), the substrate layer in the recording medium 55 (Fig. 4), a recording material layer in the recording medium 55 (Fig. 4), and a capacity of the recording medium is greater than 13.8 Gbytes per one recording surface (Fig. 1; column 9, lines 61-63).

However, Yamamoto does not teach that the medium's substrate having a thickness greater than 0.2 mm and a total thickness of the optical recording medium is substantially 1.2 mm.

Imaino teaches that the medium's substrate 410 having a thickness (0.4 mm) greater than 0.2 mm and a total thickness of the optical recording medium is substantially 1.2 mm (Figs. 2 and 7; column 5, lines 30-32; column 6, lines 5-8).

Yamamoto discloses a HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the thicknesses of different layers of his high density recording medium, it would have been obvious to one of ordinary skill in the art to use Imaino's multilayer recording medium, because it has a substrate thickness and total thickness as required by a standard HD-DVD specification similar to Yamamoto's.

(b) With respect to Claim 4, Yamamoto does not teach the following a first substrate and a second substrate formed over the surface of the first substrate wherein the second substrate has a pit pattern on a surface thereof facing the first substrate.

Imaino teaches that a first substrate 400 and a second substrate 410 formed over the surface of the first substrate 400 wherein the second substrate 410 has a pit pattern 412 on a surface thereof facing the first substrate 400 (Fig. 7). Furthermore, Imaino teaches

Yamamoto discloses a conventional HD-DVD in his optical pickup apparatus. Although Yamamoto does not specify the various layers formed in the high density recording medium, it

would have been obvious to one of ordinary skill in the art to use Imaino's multilayer recording medium having a layer structure as cited by the Applicant, because Imaino teaches a high capacity recording medium where the above layers are designed similar to a HD-DVD standard adopted to Yamamoto's.

(c) With respect to Claim 28, an optical aberration depending on a thickness of the substrate, a tilt margin, the wavelength and the numerical aperture is less than  $0.07\lambda$ , where the  $\lambda$  is the wavelength (inherent property of an objective lens under Marchel's criterion).

5. Method claim 13 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 13 correspond to apparatus claim 1 and is rejected for the same reasons of obviousness as used above.

6. Claim 14 has limitations similar to those treated in the above rejection, and is met by the references as discussed above.

7 Claim 18 has limitations similar to those treated in the above rejection, and is met by the references as discussed above.

8. Claims 15-17, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. Patent 6,392,979) in view of Imaino et al. (U.S. Patent 5,373,499) and Applicant's admitted prior art as disclosed in his parent patent US 6,345,034.

9. Yamamoto et al. in view of Imaino et al. teach an optical recording medium very similar to that of the present invention as in Claims 15-17. However, both Yamamoto and Imaino do not teach the following features:

(i) as in Claim 15, an numerical aperture control device controlling the numerical aperture of the objective lens into 0.35 to 0.40, for recording or reproducing a recording medium with a substrate thickness of approximately 0.6 mm;

(ii) as in Claim 16, the numerical aperture control device controls the numerical aperture of the objective lens into about 0.24, thereby recording and reproducing a third recording medium with a substrate thickness of approximately 1.2 mm; and

(iii) as in Claim 17, a numerical aperture control device controlling the numerical aperture of the objective lens into any one of 0.35 to 0.40 and about 0.24, thereby selectively recording or reproducing a recording medium with a substrate

thickness of approximately 0.6 mm and a recording medium with a substrate thickness of approximately 1.2 mm.

Applicant's admitted prior art as disclosed in his parent patent US 6,345,034 teaches the following:

(i) numerical aperture control device for controlling the numerical aperture of the objective lens into 0.35 to 0.40, for recording a second recording medium with a substrate thickness of approximately 0.6 mm (column 6, lines 40-67, column 7, lines 1-19; table 1);

(ii) the numerical aperture control device controls the numerical aperture of the objective lens into about 0.24, thereby recording and reproducing a third recording medium with a substrate thickness of approximately 1.2 mm (column 6, lines 40-67, column 7, lines 1-19; table 1); and

(iii) numerical aperture control device for controlling the numerical aperture of the objective lens into any one of 0.35 to 0.40 and about 0.24, thereby selectively recording and reproducing a second recording medium with a substrate thickness of approximately 0.6 mm and a third recording medium with a substrate thickness of approximately 1.2 mm (column 6, lines 40-67, column 7, lines 1-19; table 1).

The admitted various numerical apertures with respect to the thicknesses of the media as disclosed in Applicant's specification are designed for a standard HD-DVD. And it would



have been obvious to one of ordinary skill in the art to use the admitted numerical apertures as taught in table 1 of the specification because it is the required numerical apertures for focusing a light beam on a standard HD-DVD.

10. Claims 26 and 27 have limitations similar to those treated in the above rejection, and are met by the references as discussed above.

***Allowable Subject Matter***

11. Claims 19-23 and 25 are allowable over prior art.

12. Claims 6-10, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 5, the prior art of record fails to teach or fairly suggest an optical information recording apparatus having the following features:

(a) a reflective film formed between the first and second substrates.

As in claims 6 and 19, the prior art of record fails to teach or fairly suggest an optical information recording apparatus having the following features:

(a) the optical recording medium comprises a first substrate, a second substrate formed over a first surface of the first substrate and a third substrate is formed over a second surface, which is the opposite surface the first surface, of the first substrate.

The features indicated above, in combination with the

other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Minemura et al. (5,583,840) is pertinent because Minemura teaches an optical disc having a substrate of thickness about 0.2 mm.

15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington, can be reached on (571) 272-4483.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

Kim-Kwok CHU

*pc 5/10/2007*  
Examiner AU2627

May 10, 2007

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